

Course Name : Computer Engineering Group

Course Code : CO/CM/IF/CD

Semester : Second

Subject Title : Programming in 'C'

Subject Code : 12027

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme					
TH	TU	PR	PAPER HRS	TH	PR	OR	TW	TOTAL
04	--	02	03	100	50#	--	25@	175

NOTE:

- **Two tests each of 25 marks to be conducted as per the schedule given by MSBTE.**
- **Total of tests marks for all theory subjects are to be converted out of 50 and to be entered in mark sheet under the head Sessional Work. (SW)**

Rationale:

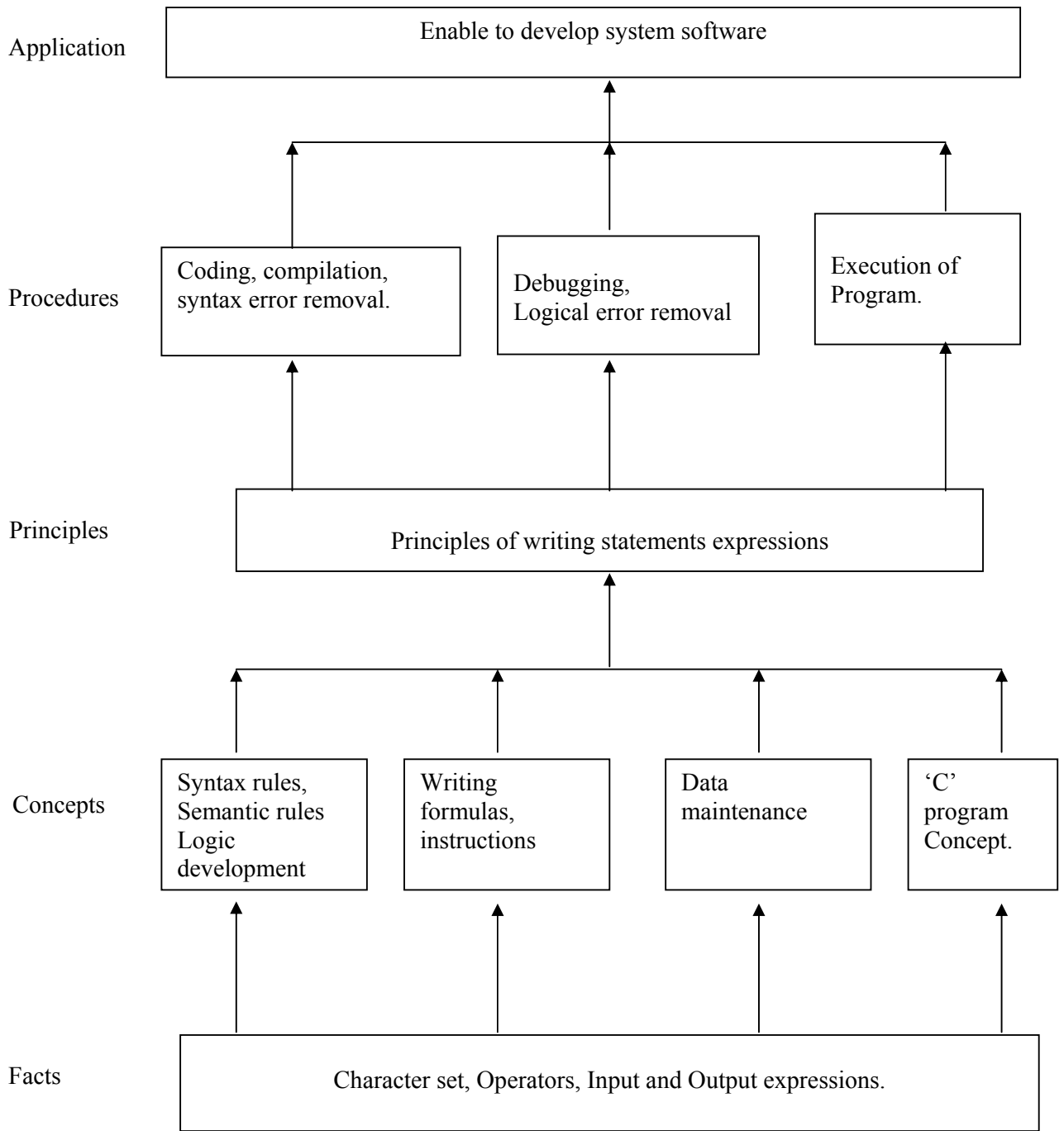
'C' is the most widely used computer language, which is being taught as a core subject. C is general-purpose structural language that is powerful, efficient and compact, which combines features of high-level language and low-level language. It is closer to Man and Machine both. Due to this inherent flexibility and tolerance it is suitable for different development environments. Due to these powerful features C has not lost its importance and popularity in recently developed and advanced software industry C can also be used for system level programming, C is still considered as first priority programming language.

This subject covers from the basic concept of C to pointers in C. This subject will act as "programming concept developer" for students. It will also act as "Backbone" for subjects like OOPS, VB, Windows Programming, JAVA, OOMD, etc.

Objectives: The students will be able to

- Describe the concepts of constants, variables, data types and operators.
- Develop programs using input and output operations.
- Write programs using different looping and branching statements.
- Write programs based on arrays and strings handling functions.
- Write programs using user-defined functions, structures and union.
- Write programs using C pointers.

Learning Structure:



Contents: Theory

Chapter	Contents	Hours	Marks
01	Basics of C 1.1 History of C, where C stands 1.2 C character set, tokens, constants, variables, keywords 1.3 C operators (arithmetic, Logical, assignment, relational, increment and decrement, conditional, bit wise, special, operator precedence), C expressions data types 1.4 Formatted input, formatted output.	10	18
02	Decision making 2.1 Decision making and branching if statement (if, if-else, else-if ladder, nested if-else) Switch case statement, break statement. (14M) 2.2 Decision making and looping while, do, do-while statements for loop, continue statement (14M)	12	28
03	Arrays and Strings 3.1 Arrays Declaration and initialization of one dimensional, two dimensional and character arrays, accessing array elements. (10M) 3.2 Declaration and initialization of string variables, string handling functions from standard library (strlen(), strcpy(), strcat(), strcmp()). (08M)	14	18
04	Functions, Structures 4.1 Functions Need of functions, scope and lifetime of variables, defining functions, function call (call by value, call by reference), return values, storage classes. category of function(No argument No return value, No argument with return value, argument with return value), recursion (12M) 4.2 Structures Defining structure, declaring and accessing structure members, initialization of structure, arrays of structure. (08M)	14	20
05	Pointers 5 Understanding pointers, declaring pointer variable, initialization of pointer variable, accessing address of a variable, pointer expressions, Pointers arithmetic, pointers and arrays, array of pointers	14	16
Total		64	100

Practical:

Skills to be developed:

Intellectual skills:

- Use of programming language constructs in program implementation.
- apply different logics to solve given problem.
- write program using different implementations for the same problem
- Identify different types of errors as syntax semantic, fatal, linker & logical

- Debugging of programs
- Understanding different steps to develop program such as

Motor skills:

- Proper handling of Computer System.

List of Practical:

Sr. NO.	Title of Experiment
01	To understand concept of algorithm and flowchart in 'C' with sample example.
02	To understand formatted input and output statements in 'C' with sample example.
03	To understand various operators in 'C' with sample example.
04	To understand decision control statements (if, if-else, nested if-else with sample example for each type
05	To understand decision control statement switch control statement in 'C'.
06	To understand Loop control statements in 'C'.
07	To understand single dimensional integer arrays in 'C'.
08	To understand multiple dimensional integer arrays in 'C'.
09	To understand string functions in 'C', by developing algorithm, flowchart & writing program for string comparison, copying and concatenation.
10	To understand functions in 'C' by developing algorithm, flowchart & writing program for finding factorial of a given no.
11	To understand concept of structure in 'C'.
12	To understand pointers in 'C', by developing algorithm, flowchart & writing program to print values of variables and their addresses and call by reference.
13	To understand array of pointers in 'C'.
14	To understand command line arguments in 'C'.

Learning Recourses:**1. Books**

Sr. No.	Name of Book	Author	Edition	Publication
1	Programming in 'C'	Balgurusamy	3 rd	Tata Mc-Graw Hill
2	Let us 'C'	Kanitkar	3 rd	BPB
3	Complete reference 'C'	Herbert Shildt	4 th	Tata Mc-Graw Hill

2. Websites:

- <http://cplus.about.com/od/beginnerctutoriali/a/blctut.htm>
- <http://computer.howstuffworks.com/c.htm>
- **Objective questions:**

<http://www.indiastudycenter.com/studyguides/sc/objtest/default.asp>

Demo lectures with power point presentations using LCD projector should be arranged to develop programming concepts of students.